

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Eastern States Orchid Listed as Endangered

The small whorled pogonia (*Isotria medeoloides*), which numbers fewer than 500 individual plants in 10 states in the eastern United States and Canada, was listed by the Service as Endangered (F.R. 9/10/82). The continued existence of this rare orchid is endangered by taking of the plants and loss of habitat.

The species was named in 1814 and was known historically to occur in 48 counties in 16 eastern States and Canada. Today it is known to occur in 15 counties in 10 different States (Illinois, Maine, Michigan, New Hampshire, New Jersey, North Carolina, Pennsylvania, Rhode Island, South Carolina, Virginia) and one county in Ontario, Canada. Two of the 17 known sites are located on U.S. Forest Service land; the remainder are on privately owned land. Over 70 percent of the known plants are in Maine.

Critical Habitat has not been determined for *Isotria medeoloides* on the basis that the disclosure of specific localities would further endanger the orchid's continued existence, making it vulnerable to taking for noncommercial purposes. This fear is not unfounded—today, there are nearly as many, if not more, dried specimens of the species in herbaria than are known to exist in the wild.

Many former localities, some dating back to the late 1800's, have been inadvertently lost due to habitat alteration. Based on herbaria label data and recent field checks of these sites, shopping malls, housing developments, and golf courses now mark the localities of historical populations. Conservation programs for the species, therefore, must be concerned with the availability of information on specific sites, so that neither inadvertent nor deliberate destruction occurs.

The plant can be found in a variety of forest types but is most often associated with relatively open areas in deciduous hardwoods. The orchid produces one or two yellowish-green flowers (from mid-May in the south to mid-June in the north) above a whorl of five or six

light green, elliptic, somewhat pointed leaves. The short sepals are up to 2.5 cm long and help distinguish the species from the other member of the genus, *Isotria verticillata*, which is more common and has longer sepals. At maturity the plants are 9.5–25 cm tall.

Isotria medeoloides was originally proposed for listing on June 16, 1976, but was subsequently withdrawn in 1979 in accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act. The Service repropose the species on September 11, 1980, basing its proposal on sufficient new information which indicated that it is in danger of extinction.

A total of 38 comments were received in response to the reproposal, including letters from the Governors of 15 States. All these interested parties and Governors supported the proposal to list *Isotria medeoloides* as Endangered.

The U.S. Forest Service supported listing the species throughout its historical range, citing no significant impact of listing on the 2¼ acres of National Forest areas in which the species occurs. Comments received from the Governor of Michigan indicated that the Michigan Nature Association currently owns the land on which the small whorled pogonia occurs in that State. The land

was purchased several years ago solely for the purpose of protecting this rare orchid population.

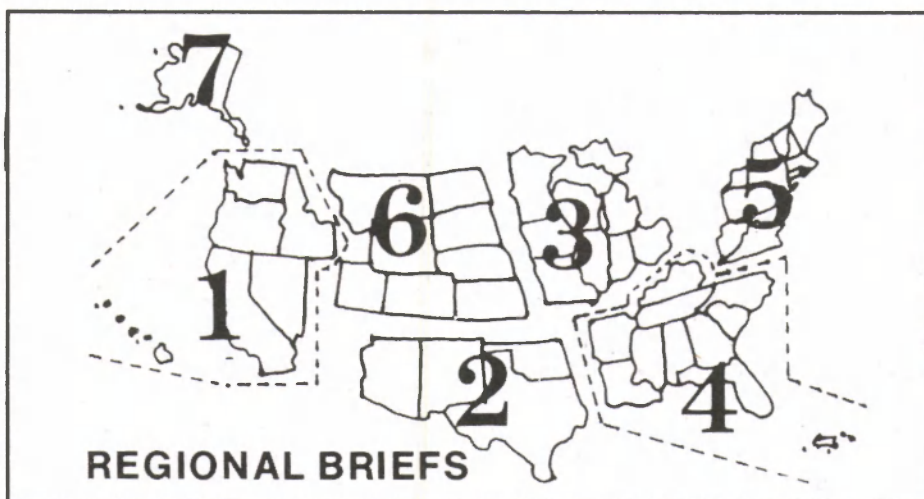
The species is officially listed as an endangered species by State law in Michigan, North Carolina, and Massachusetts, and in the Province of Ontario, and the Government of Canada. Official listing under the 1973 Act, as amended, will provide a means by which various conservation and recovery actions can be implemented to insure the continued existence of this plant throughout its range. Michigan, Connecticut, Rhode Island, North Carolina, and South Carolina, all States in the species' range, have entered into formal agreements for the protection and conservation of plants as provided by Section 6(c)(2) of the Act. About 50 individuals of *Isotria medeoloides* could be covered by the agreements.

The U.S. named this species on a provisional list for the Annex to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere during a conference held in Mar del Plata, Argentina, October 1965. The species was included on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at the original plenipotentiary conference in Washington, D.C. in February and March 1973.



Photo by Irene Stuckey

This rare orchid (*Isotria medeoloides*) is endangered by taking and habitat loss.



Endangered Species Program regional staffers have reported the following activities for the month of August:

Region 1—Three peregrine falcon (*Falco peregrinus*) chicks, bred in captivity at the Santa Cruz Predatory Bird

Research Group Lab, were transported to the Columbia River Gorge on the Washington side and placed in an artificial nest structure (hack box) near a historic eyrie as part of a reintroduction effort. The project is being funded by the Service, administered by the Washing-

ton Department of Game, and carried out by personnel of the Santa Cruz facilities. This is the second hacking attempt this year within the Olympia Area; the first was in Oregon (see June 1982 BULLETIN). It is hoped that these birds will survive and eventually establish territories in the Columbia River Gorge.

The peregrine falcon, as a breeding species, has been extirpated in Idaho for about a decade. To help the reestablishment of a breeding population in that State, the Service cooperated in a reintroduction project with the Peregrine Fund West (Fort Collins, Colorado), the Idaho Department of Fish and Game, and two private contributors (the Simplot and Boise Cascade Corporations). Two release sites were established in Idaho in the summer of 1982. A total of eight peregrine falcons were successfully released and fledged from these sites. This provides optimism for the future of the peregrine falcon recovery program in Idaho. A minimum of 90 birds will be released in the State during the next 5 to 7 years.

Forty-nine active peregrine falcon pairs have been monitored for reproductive success in California, and 15 sites were manipulated to improve reproductive success. Sixty young fledged from these wild nests for an average of 1.2 young fledged per active pair, although 14 of the sites failed to fledge young. Four young peregrines were cross-fostered to two pairs of non-listed prairie falcons (*Falco mexicanus*), and 12 young were released at four hack sites. This resulted in 76 young peregrines added to the California wild population in 1982. Almost all young were banded prior to fledging.

An agency review draft of the Macfarlane's Four O'Clock Recovery Plan has been completed. This plant is a member of the Nyctaginaceae or "four o'clock" family. In Latin, its generic name, *Mirabilis* means wondrous. This species, *M. macfarlanei*, was named for Ed Macfarlane, a boatman on the Snake River who pointed out the plant to Rollins and Constance in 1936. These botanists described the species later that year. In 1947, Davis, an Idaho botanist, discovered it on the Salmon River in Idaho. Later fruitless searches for *Mirabilis* led botanists to consider it possibly extinct. It wasn't until 1978 that a small colony was noted in Hell's Canyon Recreation Area in Oregon. It has since been found in three additional localities, including what is thought to be the type locality. The most recent discovery, the Long Gulch site in Idaho, consists of several hundred plants. In October, 1979, *Mirabilis macfarlanei* was listed as an Endangered species.

The Service is contracting a status survey for three endemic shrews: the
Continued on page 10

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The ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the
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Captured Chick Rekindles Hope for Condor Program

A California condor chick (*Gymnogyps californianus*), the first bird to be successfully taken from the wild for the Cooperative California Condor Conservation Program, is doing well at its new home, the San Diego Wild Animal Park. The bird will eventually be used in a captive breeding program designed to help recover the severely Endangered species.

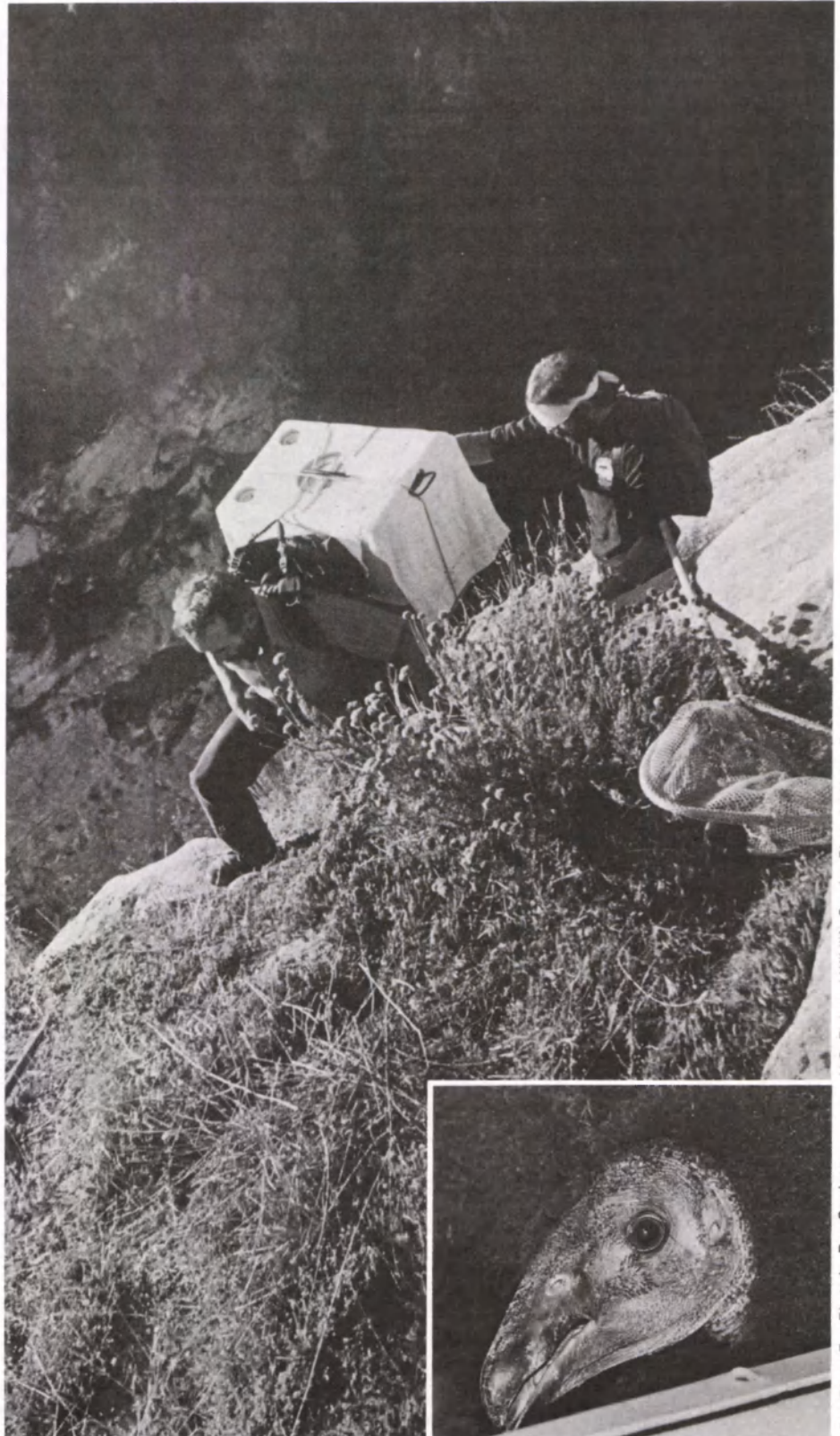
Members of the condor research team, which is separate from the advisory recovery team, captured the 14-pound chick in the mountains near Ventura, California, on August 13, 1982. It has taken food readily since it was placed (the same day) in the Wild Animal Park, and it now weighs well over 16 pounds. Blood samples will be taken later on to determine the bird's sex. Team members described the chick's capture as "probably the most important event in the 2½ years of the condor recovery program."

No condors have been trapped since the program began in December 1979. Because of the expected slow pace in trapping condors for the captive breeding program, more consideration has been given by the team in recent months to alternate ways of forming a small captive breeding population. One option—now actually initiated with the team's recent success—is the taking of nestlings from wild pairs.

This procedure will have less impact on the wild population than would the taking of adult or free-flying, older, immature condors. Field observations indicate that a pair that loses its egg, and possibly its chick, is very likely to relay within a year. Usually, parent condors care for a chick through a winter and spring following its fledging and wait 2 years to renest.

Therefore, as a second alternative to trapping, the team hopes to remove an egg laid by a wild pair and incubate it at the San Diego Zoo. Once hatched, the egg would provide a bird to eventually become part of a captive breeding population. Meanwhile, the wild pair should recycle (lay a second egg), and still have the potential for producing a chick the same year.

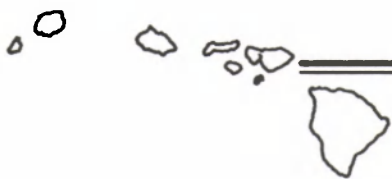
Double clutching of Andean condors (*Vultur gryphus*), a species that is also Endangered, has already been successfully achieved at the San Diego Zoo. Also, the recent success of one wild pair of California condors in recycling (laying a second egg shortly following the loss of a first egg) provides verification for this behavior in the California condor (see the March and May 1982 issues of the BULLETIN for the story).



Noel Snyder, field biologist for the Service's Condor Research Center, carries a travel case containing a California condor chick down from the Ventura-area nesting site where the condor was captured on Friday, August 13. Dr. Phil Ensley, veterinarian for the Zoological Society of San Diego, accompanied Snyder for the capture operation. The condor (inset) was taken to the San Diego Wild Animal Park to begin a captive breeding program for this critically Endangered species.

U.S. Fish and Wildlife Service Photo by Helen Snyder

San Diego Zoo Photo by Ron Garrison



HAWAIIAN FEATURE

Brighter Prospects for the 'Io Seen in Co-op Unit Study

Third in a series on Endangered species projects being conducted by the Service's Cooperative Research Units Program.

The 'io, or Hawaiian hawk (*Buteo solitarius*), was once considered a guardian spirit, watching over and protecting some of the old families of Hawaii. In later times, however, it became the hawk that needed protection when habitat alteration, illegal shooting, and introductions of exotic species jeopardized its future. Fortunately, recent field studies conducted under the Cooperative Research Units Program indicate that the status of the hawk now appears relatively stable.

From March 1980 through June 1983, Curtice R. Griffin, a University of Missouri doctoral candidate, is the primary field investigator for a Missouri Cooperative Wildlife Research Unit project on the life history and ecology of 'io, the first major study of this species. Griffin has had wide experience with raptors in various parts of the continental United States, including a study of wintering bald eagles (*Haliaeetus leucocephalus*) at Swan Lake National Wildlife Refuge (Missouri). He has also worked with the Endangered Galapagos hawk (*Buteo galapagoensis*) which, like the 'io, is endemic to an island ecosystem. The study is being done under a cooperative agreement with the Endangered Species Ecology Section of the Patuxent Wildlife Research Center.

Assisting Griffin in the field studies are Peter W. C. Paton and Sheila J. Doyle. The leader of the Service's Missouri wildlife co-op unit, Dr. Thomas S. Baskett, serves as co-investigator. Among other Service representatives participating in the project are Dr. J. Michael Scott, of the Mauna Loa Field Research Station, and Larry F. Pank, former leader of the Hawaii Wildlife Damage Research Station. The Institute of Pacific Islands Forestry (U.S. Forest Service) and the Hawaii Field Research Station (National Park Service) are also cooperators.

Since comparatively little was known about the life history and ecology of 'io, the project has been addressing a variety of topics, including breeding chronology, reproductive success, food sources (and their relation to the possible effects of environmental pollutants), home range sizes (as a possible aid in

estimating population densities), and the impacts of predation and human disturbance.

The 'io is small buteo endemic to the Island of Hawaii, and is the sole native hawk in the archipelago. Widely distributed on the island, the bird is locally common on the slopes of Mauna Loa and Mauna Kea. Although the distribution of the hawk may not have changed significantly since the 1890's, it has suffered a steep decline in numbers. Estimates made as recently as 1968 gave the total population number as in the

low hundreds. The 'io was listed as Endangered in 1967.

Nesting Observations

Information on the hawk's breeding biology and nesting behavior was gathered from April through September during the 1980-1981 seasons through the use of time-lapse cameras at some nests and extensive observations from blinds at other locations. Despite some technical problems with the cameras, data were gathered on the young hawks' nestling and early post-fledgling stages.

Although clearing of forests for agriculture and construction over the years has reduced the number of potential nesting areas, the hawks occasionally nest in relatively open areas (such as pastures and along agricultural fields) if some trees remain. The researchers emphasize, however, that although the hawk shows a remarkable ability to use highly modified habitats, the extensive destruction of native forests has undoubtedly reduced the quality of habitat available, resulting in lower densities than in earlier times.

Nests are built at heights ranging from 60 feet to as low as 12 feet. The 'io uses the same nest each year, adding to it each season until it can become as large as 40 inches across and 30 inches deep. The nests observed in the study were found in a number of different species of trees, and almost a third were built on top of large native birdnest ferns (*Asplenium nidus*), which provide a stable platform for nest construction.

The nesting site tenacity of the 'io is illustrated by an incident that occurred in June 1980, when a hawk nest blew down leaving a downy chick homeless. Griffin's wife, Bridget, filled in as a foster parent for 2 days while Griffin and Paton worked at getting the chick back to its parents. Their first attempt at constructing a substitute nest in a tree near the old site failed because the female would not fly to the new nest. But when they placed a new nest at the site of the old nest, the chick was immediately accepted and later successfully fledged.

The hawks observed during the field studies nested from March through September, and most laid their eggs in late April and early May. Although the fragmentary early literature gave the aver-

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Mature 'io are found in light and dark phases, as shown by this pair at their nest in a native koa (Acacia koa) tree. The two color phases do not indicate either age or sex.

by Curtice R. Griffin/Missouri Wildlife Co-op Unit

ACTION ON 3 PLANTS

Two Hawaiian Plants Proposed as Endangered

Two plant species, the cuneate bidens (*Bidens cuneata*) and the Diamond Head schiedea (*Schiedea adamantis*), which occur only on Diamond Head, O'ahu, Hawai'i, have been proposed by the Service as Endangered (F.R. 8/23/82). Both plants are jeopardized by habitat deterioration associated with hiking trails, encroachment by exotic plant species, a significant fire hazard, and plans to develop the area for recreation, along with their very small numbers and restricted distribution.

Background

B. cuneata (an herb) and *S. adamantis* (a small shrub) are known from a single small population each, restricted to the rim of Diamond Head Crater. The total known number of mature individuals for each species was recently estimated at 10 and 78, respectively. Because both plant colonies are located immediately adjacent to a trail used heavily by hikers, habitat deterioration resulting from this activity is of particular concern. Soil compaction, promotion of erosion through loss of vegetative cover, and possibly inadvertent trampling of plants due to passage of hikers have resulted from continued use of the crater rim path.

Human impacts on the sites are expected to intensify if the State fulfills its plans to develop Diamond Head into a

public park and recreation area. Additional public use also will probably increase the hazard of fire, which is already a significant threat to the plants because of the dry conditions in the area during part of the year. Because of the extremely small numbers of remaining individuals and their very limited distribution, a single fire could result in the species' extinction. Another constant threat to both taxa, as well as much of Hawai'i's other native flora, is competition by aggressive exotic vegetation.

Critical Habitat for the two species was not proposed at this time. The extremely low number of individuals, the restricted range, and the proximity of both populations to a heavily used hiking trail would make the plants highly vulnerable to inadvertent or deliberate damage by curiosity seekers and vandals if the exact locations of the populations were publicized. However, under Section 7 of the Endangered Species Act, no Federal agency can fund, authorize, or carry out any actions likely to jeopardize the continued existence of the plant. The prohibitions on import/export and trade would also apply.

Under Hawaii law, listing by the Federal Government would bring the species under additional protection by the State, which prohibits taking of listed plants and imposes restrictions on State agencies similar to those included in Section 7 of the Act.

Both of the proposed species are of great scientific interest because they are members of families which have undergone much evolutionary diversification in Hawaii, and they belong to genera that would make excellent models for the study of evolution and adaptive radiation in insular floras. The Hawaiian species of *Bidens* have been, and are still being, used for such studies. Additionally, *Schiedea*, an endemic genus of the carnation family, has an unusual floral structure and is of scientific interest due to its reproductive system.

Public Comment Requested

Comments on the listing proposal are requested from all interested persons, organizations, and agencies, and should be received by the Pacific Islands Administrator (U.S. Fish and Wildlife Service, P.O. Box 50167, Honolulu, Hawai'i 96850) by November 22, 1982.

'Ewa Plains 'Akoko Listed as Endangered

The 'Ewa Plains akoko (*Euphorbia skottsbergii* var. *kaiaeloana*), a native plant found only near Barbers Point, O'ahu, Hawai'i, has been listed by the Service as an Endangered species (F.R. 8/24/82). Extensive development of its habitat and an invasion of aggressive exotic plants are the primary threats to the 'akoko.

Background

The small shrub is one of four plant taxa originally described as endemic to the 'Ewa Plains on the southwestern corner of Oahu. Another variety of the same species (*E. s. var. skottsbergii*) formerly was found nearer the shoreline in the same general area, but has not been seen since 1932 and is presumed extinct. A third plant, a species of grass, is presumed extinct, and the fourth species, another shrub, is considered vulnerable. These plants have adapted to a habitat consisting of a low coralline plain covered with karst features such as sinkholes, irregular ridges, and blocky rock masses. It lies in the rain shadow of the Ko'olau Mountains and receives less than 20 inches of precipitation annually.

Plant habitat on the 'Ewa Plains has been subject to varying degrees of disturbance since Polynesian settlement of the islands, with most of the develop-

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Bidens cuneata

Reprinted from NEW ILLUSTRATED FLORA OF THE HAWAIIAN ISLANDS, Otto Degener, January 15, 1940.



Schiedea adamantis

Reprinted from PACIFIC SCIENCE, Vol. XXIV, No. 2, April, 1970.

HAWK

Continued from page 4

age clutch size as two to three eggs, the researchers found that only one egg was produced at the nests where egg numbers could be determined. Fledging success rates for nesting attempts were well over 50 percent in both years. Most of the incubation, which lasted about 38 days, was done by the female while the males secured the food. The females' tolerance for the male at the nest then declined markedly during the nestling stage.

The young birds usually fledged in late July and August, at about 8 to 9 weeks (almost twice as long as the nesting period of similarly sized buteos in temperate regions), and they remained in the nest area for several months to over a year. As a result of this careful parental care, and the fact that these insular raptors are nonmigratory, the survival of fledglings appears to be substantially higher than that of most mainland raptors.

Feeding Analysis

The 'io preys on a wide variety of native species, and takes many that have been introduced—accidentally and on purpose—on the Big Island. Among the organisms upon which the hawk feeds are mice, rats, mongooses, insects, mynah and rice birds, and even crayfish. Contamination of the food chain by DDT and other long-lived pesticides, which was a major factor in the decline of such mainland raptors as the bald eagle and peregrine falcon (*Falco peregrinus*), does not appear to have occurred for the 'io. Several unhatched eggs and a dead chick were salvaged during the study, and were sent to the Service's Patuxent Wildlife Research Center for analyses; no traces of organochlorides and only very low levels of heavy metals were found. (A necropsy of the chick indicated that it had died of internal injuries after falling from its nest.)

Radio Telemetry

An important part of the project involved radio-tracking 'io throughout both their breeding and nonbreeding seasons to gather information on home range size. The telemetry data are still being analyzed to determine the bird's foraging behavior, patterns of habitat use, and population densities. During the study, 3 juvenile and 11 adult hawks were radio-tagged, and their movements tracked by ground triangulation. The 3 young birds were monitored for more than 7 months each before the units failed or were removed by the birds, and much information was gath-

ered on post-fledgling movements. The tracking success rate was lower with the 11 units fitted on adult hawks, although some did operate normally and contributed valuable data. The high removal and failure rate of 9-gram tail-mounted units in 1980 was greatly reduced in 1981 when the researchers switched to 10-gram back-mounted units.

The Future

Although the data collected during the field observation phase of the study are still being analyzed, it is apparent that the 'io is more numerous than earlier believed, and that the population may now be stable. The breeding strategy of the bird is well suited to the tropical climate of Hawaii. Its small clutch size, along with its long incubation and nestling periods, contrast sharply with hawks in temperate zones. Productivity is good and, other than humans, there

are no serious predators of 'io and their young.

Under a separate contract, Griffin is preparing a Hawaiian Hawk Recovery Plan, which will provide a detailed guide for research and management for recovery of the species. Among the continuing threats to the hawk that will be addressed in the plan are habitat modification, which effects population densities, and human disturbance. The 'io is quite tame away from its nest, and can be easily approached, making it particularly vulnerable to rock throwing and illegal shooting. Excessive human presence at the nest can cause the hawk to abandon the site.

Compared to many native Hawaiian forest birds, the future of the 'io looks brighter if high quality native habitat is conserved, human disturbance is reduced, and the public is better educated to the value of Hawaii's irreplaceable natural heritage.



Curtice Griffin inspecting an 'io nest high in a native ohia lehua (*Metrosideros* sp.) tree on a ranch adjacent to Hawaii Volcanoes National Park.

by Peter W.C. Paton/Missouri Wildlife Co-op Unit

'AKOKO

Continued from page 5

ment occurring in recent decades. The area now supports a naval air station, sugar plantation, and industrial park, as well as some residential development, limestone quarrying, and livestock operations. Only about 12 percent of the plains remain undeveloped. Future plans include the expansion of the industrial park and completion of a deep-draft harbor. Due to habitat disturbance and past introductions of exotic plants, the 'Ewa area supports predominantly non-native vegetation dominated by kiawe (*Prosopis*) and koa haole (*Leucaena*), with only remnant populations of native species.

Regulatory History

The 'Ewa Plains 'akoko was first proposed by the Service as Endangered in 1976, along with about 1,700 other plants identified in a petition prepared by the Smithsonian Institution. In accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act, the proposal was withdrawn in December 1979. The 'akoko was repropoed as Endangered on September 2, 1980, based in part on new information provided under contract by the University of Hawai'i.

All those responding to the proposal, with the exception of the Governor of Hawai'i and the Smithsonian Institution (the latter provided no additional comments), indicated that the status of the plant was such as to warrant listing as Endangered. Among the agencies generally supporting the proposal were the U.S. Army Corps of Engineers, the U.S. Department of the Navy, and the U.S. Forest Service; a number of private organizations and individuals also responded favorably.

The Governor asserted that efforts by the Corps of Engineers and a private developer involved at Barbers Point would insure the plant's survival through the proposed establishment of sanctuaries and of transplanted populations within the 'Ewa Plains. He also opposed the listing on the grounds that it might effect construction of the deep-draft harbor at Barbers Point. The Service responded that the results of existing conservation measures are not yet conclusive, that recent transplantation experiments with the 'akoko have not been successful, and that the available information indicates a pattern of long-term decline and significant losses in the plant. Further, current data make it probable that, while some plants would be lost during harbor construction and associated development, the species as

a whole would not be subjected to further significant jeopardy by the project if the long-range planning incorporates conservation measures. Recently, another population of the 'akoko was found on Federal land in the area. Because this discovery will lessen the impact of harbor construction on the species overall, little likelihood is foreseen of an irreconcilable conflict between the deep-draft harbor and Federal management of the 'akoko.

A determination of Critical Habitat for the 'akoko was found by the Service to be neither biologically feasible or of benefit to the plant at this time. Because the 'Ewa Plains environment is heavily disturbed by development and dominated by exotic vegetation, and because the precise habitat needs of the plant are not known, no area can be identified upon which are found physical or biological features essential to the conservation of the species. This does not preclude a Critical Habitat determination in the future if further studies warrant.

Effects of the Rule

As an Endangered species, the 'Ewa Plains 'akoko may not be imported or exported by anyone subject to the jurisdiction of the United States, or be entered into interstate or international trade. Certain exceptions apply to authorized agents of the Service and State conservation agencies. Permits may also be granted for approved conservation purposes.

The rule also requires that Federal agencies insure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species. This provision allows the U.S. Army Corps of Engineers and the U.S. Naval Air Station at Barbers Point to consult formally with the Service concerning their activities in the area as they might affect the 'akoko, so that plans can be developed to insure the species' survival. Such plans may include the establishment of new populations of the taxon in protected areas within the 'Ewa Plain as well as protection of existing populations on Federal property.

Colorado Plant Given Endangered Status

Phacelia formosula (North Park phacelia), which is known only from two populations 5 miles apart in Jackson County, Colorado, has been listed by the Service as Endangered (F.R. 9/1/82). Threats to the species include motorcycle use of the habitat, potential oil and gas or coal exploration, and damage from cattle trampling.

Phacelia formosula was originally proposed for listing on June 16, 1976, but was subsequently withdrawn in 1979 in accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act. The Service repropoed the species on September 2, 1980, based on sufficient new information which indicated that it is in danger of extinction.

Background

The North Park phacelia was first discovered in 1918 and published as a new species in 1919. Modern work on the species did not begin until 1969, when Dr. Duane Atwood rediscovered the historical (type) locale and published an analysis of the species. This historical population, located on a sandstone bluff above the Michigan River, has been severely disturbed by heavy motorcycle use and some trampling by cattle. This population has fluctuated from 22 plants in 1979 to, perhaps, a maximum of 200 in the very favorable season of 1981.

A second population, found in 1981, consists of five sites in an 8-mile stretch along the North Platte River. The major concentration of plants (around 2,500 individuals) was at one of these sites, while the other four sites consisted of only 3 to 15 plants each. The North Platte site hosting the major concentration of plants is within a "Known Recoverable Coal Resource Area," has been partially leased for oil and natural gas

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Photo by Karen Wiley-Eberle

Phacelia formosula is known only from two populations in Jackson County, Colorado.

Reclassification Proposed for Texas Alligators

The American alligator (*Alligator mississippiensis*) in Texas has been proposed for reclassification from Endangered and Threatened to Threatened due to Similarity of Appearance (F.R. 9/13/82). If the proposal becomes final, it would constitute formal recognition by the Service of the large reptile's biological recovery within the State. Commercial take of Texas alligators, currently illegal, would then be authorized in accordance with a State management plan and the Service's special rules. The proposed rule would not affect the alligator in other parts of its range.

Background

The alligator was Federally listed as Endangered in 1967 after poaching and overhunting for its fashionable leather led to a decline in the species. (In 1969, the State of Texas closed alligator seasons.) Subsequent recovery of the alligator in some parts of its range under Federal and State protection has allowed the gradual reclassification in areas where it is most secure. Currently, the alligator is listed as Threatened due to Similarity of Appearance in Louisiana; Threatened in Florida and certain coastal areas of Texas, Georgia, and South Carolina; and Endangered throughout the remainder of its range in Texas, Georgia, South Carolina, North Carolina, Alabama, Mississippi, Arkansas, and Oklahoma.

Alligators in coastal Texas were reclassified to Threatened on January 10, 1977. Service data indicate that from 1977 to 1979, four national wildlife refuges along the Texas coast showed an increase in their alligator populations. Other data gathered by State, university, and private biologists also point to greater numbers through increased nesting and nesting success. According

to the Texas Parks and Wildlife Department, nest densities appear to be near maximum and population growth may have reached optimum proportions. The overall situation for alligator habitat is considered good because much of the prime habitat is under State or Federal control and because water storage activities are increasing habitat availability.

The final rule, if approved, will change the status of all alligators in Texas from Endangered or Threatened to the special category of Threatened due to Similarity of Appearance. This classification, authorized under Section 4(e) of the Endangered Species Act, would remove Federal agency habitat conservation responsibilities under Section 7 and return primary management authority to the State.

Public Comments

All individuals, agencies, organizations, or other interested parties are invited to submit written comments on the reclassification proposal by November 12, 1982. Address comments to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103.

COLORADO PLANT

Continued from page 7

exploration, and also is subject to cattle trampling.

Reproductive success of the historical population is reported to be very poor. Disturbance within any given year is potentially intensified because of the species' probable biennial life cycle. In the first year, it produces a basal rosette of leaves. The following year, it sends up a flowering stem, usually branched at the base, with violet flowers in several coiled branches. This second-year plant sets seed and dies.

Comments on the 1980 proposal all supported listing this species. Critical Habitat was not proposed, since publication and a public meeting on the plants' type location near a town would increase the risk of vandalism.

Priority for coal development within the species' habitat is low; the BLM has declared its portion of the site unsuitable for coal development. The potential for exploratory drilling is considered medium to low.

Effects of the Rule

Section 7(a) of the Endangered Species Act of 1973, as amended, requires Federal agencies to evaluate their actions with respect to potential impact on any listed species. Part of the North Park phacelia's habitat is managed by the Bureau of Land Management (BLM) and will, therefore, be covered by the provision. In addition, since the species is listed under the Act, certain other conservation authorities become available and protective measures may be undertaken for it. These could include the use of Federal and State funds for the species since Colorado has a plant cooperative agreement under Section 6(c)(2) of the Act.

Santa Barbara Song Sparrow Proposed for Delisting

The Service has proposed to remove the Santa Barbara song sparrow (*Melospiza melodia graminea*) from the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 8/9/82). This action is being taken because the species has become extinct.

The sparrow formerly occurred only on Santa Barbara Island, Los Angeles County, California—an island only 2.6 km² in size—where it was extremely abundant. Removal of native vegetation for farming and by introduced domestic goats and rabbits reduced the habitat for this species. Feral house cats probably became significant predators once dense vegetation was destroyed. Even so, the species was able to maintain high numbers on certain portions of the island until 1959 when a major fire destroyed much of its remaining habitat. The fire was so intense that two-thirds of the island was denuded down to the mineral soil.

In spite of regular visits to Santa Barbara Island by ornithologists in the years following the fires, including intensive surveys for the sparrow in 1974 and 1978, no individuals of this subspe-

cies have been seen in over 20 years. The island is easily surveyed, so it is certain that the species has not been overlooked.

The bird was classified as Endangered in 1973, under the Endangered Species Act of 1973. No Critical Habitat was designated. This action will simply acknowledge the species' extinction and remove it from protection under the Act.

Public Comments

All individuals, agencies, organizations, or other interested parties are invited to submit written comments on the reclassification proposal by November 12, 1982. Address comments to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103.

Interested persons and organizations are requested to submit comments to the Regional Director (ARD/FA) U.S. Fish and Wildlife Service, 700 N.E. Multnomah Street, Suite 500, Portland, Oregon 97232 (503/231-6131). All comments must be received by November 8, 1982.

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—

Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S.

The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

Export Guidelines, Proposed Bobcat Findings Published

The Service has announced its proposed findings on the export of bobcats (*Lynx rufus*) from this country, and its decisions on the guidelines used in making the findings (F.R. 8/20/82). Proposed guidelines were presented to the public for comment earlier (F.R. 4/5/82); a summary of these comments is also included in the August notice.

The Service proposed to approve export of bobcats harvested during the 1982–83 season in the following States on the grounds that the guidelines are expected to be met: Alabama, Arizona, Arkansas, California, Colorado, Georgia, Idaho, Kansas, Klamath Tribe, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Montana, Navajo Nation, Nebraska, Nevada, New Hampshire, New Mexico, New York, Oklahoma, Oregon, South Dakota, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

The Service proposed not to grant general approval for exports of bobcats harvested in certain States that have received export approval in the past. Presently the Service lacks assurance that the guidelines will be met in these States: Florida, Michigan, Missouri, North Carolina, North Dakota, South Carolina, Tennessee, and Virginia.

The Service proposed these guidelines in order to comply with the ruling by the U.S. Court of Appeals for the District of Columbia (*Defenders of Wildlife vs. Endangered Species Scientific Authority*, 659 F. 2d 168 [1981]) that bobcat exports may not be permitted under CITES unless the Service's Scientific Authority findings were based on "reliable estimates of the bobcat population and data showing the total number of bobcats to be killed in each of the States involved." The proposed guidelines responded to a subsequent District Court decision which held that the Service's decision-making methodology for making findings for the 1981–1982 season did not comply with the Court of Appeals ruling (see February 1982 BULLETIN for details).

Comments on the Guidelines

The Service received comments and information on the guidelines from 24 State wildlife conservation agencies, the majority of which took issue with the Court of Appeals' evaluation of wildlife management techniques. In general, States indicated that they adequately regulate the harvest of bobcats on the basis of various types of information other than population estimates, which they contend have little practical value for management purposes because of their low statistical reliability and the high cost of research to generate them.

These remarks were supported by comments submitted by the International Association of Fish and Wildlife Agencies, the Wildlife Legislative Fund of America, and the National Alligator Association. Since the Court of Appeals ruling requires population estimates and information on harvest levels, however, the Service is unable to adopt these comments.

Several States commented on the proposal requirement of a numerical limit on harvest that would be deemed nondetrimental. They indicated that harvest limits can be set by adjusting the length and timing of harvest and by specifying harvest methods. They consider the establishment of a finite harvest number as neither feasible or necessary. Several States also commented, rejecting the requirement that a precise percentage of the population be established as a limit for harvest. The Service agrees that any such percentage is arbitrary and inappropriate in view of the low precision attainable for population estimates and the need to base harvest levels on each State's population research findings. Accordingly, the Service deleted this requirement from its proposed guidelines.

Comments submitted on behalf of *Defenders of Wildlife* and the *Humane Society of the United States* commended the Service for its proposed guidelines and stated that, in general, they meet concerns and requirements set out in

the Court of Appeals decision. Both organizations, however, stated that the guidelines needed further clarification and detail. The Service has, in most cases, modified the guidelines to satisfy their suggestions. Comments on the proposed findings were accepted until September 20, 1982.

Forfeited Wildlife Products Sold

In September, the Service held the first Government sale of forfeited wildlife products. The sealed-bid auction was to dispose of African elephant ivory products, Appendix II reptile leather goods, and assorted items involved in Lacey Act violations. The items were on public display in a Federal Building in Brooklyn, New York, prior to the sale, which the General Services Administration conducted for the Service. Sealed bids were due before 11 a.m. on September 29, and winning bids will be awarded by October 8.

In 1978, through passage of the Fish and Wildlife Improvement Act, Congress authorized the Service to dispose of the forfeited wildlife. The Service published final regulations on methods of disposal in the April 23, 1982, *Federal Register*. The regulations limit the types of wildlife the Service may sell—the sale of migratory birds, bald and golden eagles, and species listed on Appendix I of CITES is prohibited. Endangered and Threatened species and marine mammal products may be sold only if the item or species may be lawfully traded in interstate commerce, such as American alligator products, African Ivory, and authentic Alaskan Native articles of handicraft or clothing. The Service did not sell any item for which it is the sole source. Unsuccessful bidders at the auction can find the same or comparable items from other lawful sources.

The Service intends to hold similar sales in the future. For further information contact: Division of Law Enforcement, U.S. Fish and Wildlife Service, U.S. Department of Interior, Washington, D.C. 20240 (202/343-9242). Please refer to FWS-F-0130 when making inquiries.

Appendix II Species Findings Proposed

The Service has proposed export findings for certain CITES Appendix II species taken in the 1982-83 harvest season (F.R. 8/31/82). Species involved are the lynx (*Lynx canadensis*), river otter (*Lutra canadensis*), Alaskan gray wolf (*Canis lupus*), Alaskan brown bear (*Ursus arctos*), American alligator (*Alligator mississippiensis*), and American

Botswana to Host Fourth Regular CITES Meeting

The fourth regular meeting of the Conference of Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has been tentatively scheduled for April 19 to 30, 1983, in Gaborone, Botswana. A notice announcing a series of public meetings preparatory to the CITES meeting and seeking information and comments on the agenda was published by the Service (F.R. 8/5/82).

This is the first of a series of notices which together with public meetings provide the public an opportunity to participate in the development of the U.S. negotiating positions for the Botswana meeting. The Service will consider all comments and information received by October 31, 1982, concerning the provisional agenda. (Please consult the *Federal Register* for details of the proposed agenda.) The Service plans to publish a notice of proposed negotiating positions during the latter part of November 1982, to hold a public meeting on such positions around the middle of February 1983, and to publish a notice of negotiating positions around the beginning of April 1983.

Organizations and agencies wishing to send observers to the Botswana meeting are responsible for so informing the Secretariat. In the past, the Secretariat has required that such notice be given at least one month prior to the meeting. The Secretariat may be contacted at the following address: CITES Secretariat, Avenue du Mont-Blanc, CH 1196, Gland Switzerland, Telex: 22618 IUCN ch, Cable: IUCNATURE GLAND.

Persons wishing to be observers representing U.S. national nongovernmental agencies must also receive prior approval of the Service. Such requests for approval should include evidence of technical qualification in protection, conservation, or management of wild fauna and flora. Requests should be sent to the Director, U.S. Fish and Wildlife Service, Federal Wildlife Permit Office, Washington, D.C. 20240.

ginseng (*Panax quinquefolius*).

In a previous notice on this subject (F.R. 4/5/82), the Service invited comments on new proposed export guidelines, as well as information on the species listed above—including the bobcat (*Lynx rufus*). On the basis of the comments received, the Service concluded that the new proposed guidelines are inappropriate for lynx, otter, and alligator and has decided to use guidelines developed in 1977 for export of these species. New guidelines will be used only for the export of bobcats (see accompanying article).

Because of the Service's decision to use previously developed guidelines (for all involved species except bobcat), information needs, to be used in developing both Scientific Authority (SA) and Management Authority (MA) findings, have been reduced from those outlined in the April 1982 notice. Specifically, the Service has eliminated requests for population estimates, numbers of ani-

World National Parks Congress 1982

"Protected Areas in a Changing World," will be the theme of the once-a-decade *World National Parks Congress* to be held in Bali, Indonesia, October 11-22, 1982. This congress will bring together 450 professionals involved in planning and managing protected areas to discuss the current state of their science, and to help design and promote an expanded role for protected areas in the process of social and economic development.

Hosted by the Government of Indonesia, the congress is sponsored by the International Union for the Conservation of Nature and Natural Resources (IUCN) and cosponsored by the United Nations Environment Programme (UNEP), Unesco, the Food and Agriculture Organization of the UN (FAO), the World Wildlife Fund (WWF), the U.S. National Park Service, and Parks Canada. The Congress will produce three state-of-the-art books in workshop sessions: *Managing Protected Areas in the Tropics*; *Managing Coastal and Marine Protected Areas*; and *Training Protected Area Personnel*. A proceedings volume will be produced.

The views of the congress participants regarding world governments' role in supporting social and economic development will be communicated to all governments of the world in the form of the Bali Declaration. The congress will call for greater government and public support in this effort.

mals bought by dealers, number of licensed trappers, and prices paid to trappers for pelts. Required information is detailed in the August notice.

For ginseng, the Service is using the same guidelines as were used last year in determining if exports will not be detrimental to the survival of the species. Because the status of wild ginseng does not vary greatly from year to year within any given State, the Service proposed to issue findings valid for a 3-year period. The Service will continue to monitor the status of ginseng each year, maintaining the option to revise the findings at any time if new information shows a need to do so.

The Service proposed to approve exports of the following species harvested during the 1982-83 season for animals and the 1982 through 1984 seasons for ginseng in the following States, on the grounds that both SA and MA guidelines are expected to be met:

Lynx—Alaska, Idaho, Minnesota, Montana, and Washington.

River otter—Alabama, Alaska, Arkansas, Connecticut, Delaware, Florida, Georgia, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, New Hampshire, New York, North Carolina, Oregon, South Carolina, Vermont, Virginia, Washington, and Wisconsin.

Alaskan gray wolf—Alaska.

Alaskan brown bear—Alaska.

American alligator—Florida and Louisiana.

American ginseng—Arkansas, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, North Carolina, Ohio, Tennessee, Vermont (artificially propagated ginseng only), Virginia, West Virginia, and Wisconsin.

Exports of CITES Appendix II animals or plants can only be authorized if the MA is satisfied that the species were not obtained in contravention of laws for their protection and if the SA advises that export will not be detrimental to the survival of the species. Tagging requirements for the 1982-83 season are detailed in the August notice.

REGIONAL BRIEFS

Continued from page 2

San Bernardino dusky shrew (*Sorex monticolus parvidens*), Santa Catalina shrew (*Sorex ornatus willetti*), and the Suisun shrew (*Sorex ornatus sinuosus*). Although the present population status is unknown, all three have extremely reduced ranges with continuing habitat modification and the continued existence of all three shrews is in doubt.

Region 2—The New Mexico Game and Fish Department, under contract to the Service, has completed a survey of the Pecos River in search of the blunt-

Continued on page 11

REGIONAL BRIEFS

Continued from page 10

nose shiner (*Notropis simus*). This minnow is believed to have been extirpated from the Rio Grande, but 2 years ago a new subspecies (*N. s. pecosensis*) was identified in one of its tributaries, the Pecos. The new survey indicates that the subspecies is still extant in the Pecos, but that it is jeopardized by both pollution and loss of water for irrigation and other uses. For this reason, the State has recommended designating the fish as Threatened and Region 2 has nearly completed a proposed listing package.

A recent stock analysis at Dexter National Fish Hatchery has found that the Amistad gambusia (*Gambusia amistadensis*) no longer exists at that facility and, in fact, may never have existed there. This suggests the possibility that the species is extinct. It was declared extinct in the wild several years ago after construction of the Amistad Reservoir destroyed its natural habitat, and it now appears that both captive populations (Dexter and the University of Texas at Austin) are also lost.

The masked bobwhite (*Colinus virginianus ridgwayi*) summer call count results in Arizona and Mexico were discouraging. On Buenos Aires Ranch in Arizona, the only place in the U.S. where attempts have been made to reestablish the jeopardized quail, habitat conditions have deteriorated due to heavy grazing. The Service is contracting with the Arizona Game and Fish Department to complete a study searching for suitable release sites within the State. In cooperation with the Mexican government, 1034 masked bobwhite chicks were released at two sites in northern Mexico within the bird's historic range. Releases in Mexico during 2 previous years may have succeeded in establishing one small population.

Beginning with fiscal year 1983, Ecological Services field offices will have primary Section 7 consultation responsibilities in Region 2.

Region 3—Regional personnel assisted in the Aleutian Canada goose transfer (see Region 7 news) as the birds were shipped through the Minneapolis Airport, caring for the geese until they were ready to resume their journey and helping them make their connecting flight.

The region has also assisted the U.S. Army Corps of Engineers in developing an agreement with Wisconsin for the State to act on behalf of the Corps in processing "Section 404" permits.

Region 4—Dr. Arthur H. Clarke, contractor for the Tar River spiny mussel status survey, has recently found an individual of this mussel (*Canthyria* sp.), which was believed extinct. Clarke

found the mussel in the Tar River, North Carolina, near the site of the species' original discovery.

Region 5—As part of the Massachusetts bald eagle (*Haliaeetus leucocephalus*) hacking project, two birds were fitted with small radio-transmitters for monitoring of their movements. After both birds began flying, one went north into Ontario, Canada, where its signal was lost; the other was still near the release site as of early September.

Endangered species biologist Martha Tacha, of the Annapolis Ecological Services Office, is working on a Memorandum of Understanding with the National Zoo in Washington, D.C., to conserve the single known habitat of the Hay's spring amphipod (*Stygobromus hayii*). The agreement should be signed sometime in September 1982.

West Virginia has signed an Endangered Species Cooperative Agreement, which should be received in the Region 5 office shortly.

Region 6—The final Colorado River Fishery Project report has been completed. The three-volume report consists of a Summary Report (Part 1) which synthesizes and analyzes Field Investigations (Part 2) and Contracted Studies (Part 3). Although Colorado squawfish (*Ptychocheilus lucius*) appear widespread throughout the Upper Colorado River Basin, they are not concentrated in large numbers in any one location. A 66 percent decline in juvenile and adult Colorado squawfish has been calculated for the period between 1960 and 1980, while the decline of young-of-the-year squawfish appears even greater and numbers may still be declining. As spawning areas seem limited, the life stages of greatest concern are those from spawning through the first year. If adequate spawning and rearing areas are not located and maintained, stocking programs will be required to insure the continued existence of the species. Extensive movement of Colorado squawfish between mainstem rivers and tributaries has been documented, with some individuals traveling over 200 miles. A Colorado squawfish spawning site was confirmed in the Yampa River. Thus, it appears blockage of such migration routes may have significant impact on the species.

Humpback chubs (*Gila cypha*) are found primarily in four locations (Black Rocks, Westwater Canyon, and Gray Canyon in the Upper Colorado River Basin, and the Little Colorado River in the Lower Colorado River Basin). All but the Gray Canyon population appear to be stable at this time. It does not appear that present flow depletions and regulations are significant limiting factors to the humpback chub in the Upper Colorado River; however, hybridization with the roundtail chub (*Gila robusta*) has

been documented, a factor which may be related to alteration in flow and/or temperature.

Humpback chubs have demonstrated a need for temperatures of at least 16–18°C to spawn and have eggs hatch. Populations in Black Rocks, Westwater Canyon, and the Little Colorado River should be considered relatively secure, barring significant alteration in their habitat. However, the Gray Canyon population in the Green River seems to be decreasing rapidly and will require intensive management if it is to be maintained.

Few bonytail chub (*Gila elegans*) still exist in the Upper Basin. Individuals were found in Gray Canyon; however, the largest existing population is found in Lake Mohave in the Lower Basin. It appears doubtful that the bonytail will survive without intensive management.

Limited copies of the report are available through the Regional Director, Bureau of Reclamation, Upper Colorado Region, P.O. Box 11568, Salt Lake City, Utah 84147.

Region 7—On the recommendation of the Aleutian Canada Goose Recovery Team, all flight-capable Aleutian geese (*Branta canadensis leucopareia*) being held at the Northern Prairie Wildlife Research Center were shipped to Alaska and released on Agattu Island this August. Mortality of geese during the 48-hour journey was low, and the 291 geese released appeared to be in excellent condition. Concurrently, a team of five Service biologists and three volunteers on Buldir Island captured 140 wild Aleutian geese which were also released on Agattu. This trap-and-transplant procedure will be the basis for future efforts to reestablish breeding colonies of Aleutian geese on islands from which they were extirpated by introduced Arctic foxes.

All the geese released or transplanted were banded with blue leg bands marked with white letters or numerals. Fall migration is fast approaching, and sightings of the marked geese in their California and Oregon wintering grounds will soon provide a measure of the success of the release effort.

Preliminary results from this summer's peregrine falcon survey and banding efforts in Alaska are as follows: for *Falco peregrinus anatum*, 87 nesting attempts were recorded; 158 total young were observed for a production ratio of 1.8 young per nesting attempt; and 140 nestlings were banded. For *F. p. tundrius*, 37 nesting attempts were recorded; 64 total young were observed for a production ratio of 1.7 young per nesting attempt; and 60 nestlings were banded. Blood samples for pesticide analysis were taken from 15 of 17 adult peregrines trapped; eight of the 17 had been banded previously.

New Publications

Limited copies of the "Report of Freshwater Mollusks Workshop—19–20 May 1981," by Andrew C. Miller (Compiler), U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi 39180, are available. To request a copy, write to the Director (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240. The report summarizes the objectives and status of a 2-year Corps effort to collect information on sampling methodologies, biological and ecological requirements, and habitat creation for selected common and federally listed Endangered mollusks. It was published in May 1982.

The annual report on the Service's administration of eight marine mammals for which it is responsible under the Marine Mammal Protection Act is now available. Marine species under the Service's jurisdiction are polar bears, sea and marine otters, walruses, manatees (three species), and dugongs. Administrative actions discussed in this report include those affecting Endangered and Threatened species (specifically the West Indian Manatee in Florida and the sea otter in California). Single copies of the report, which covers the period January 1, 1981, to December 31, 1981, may be requested by writing the Director (PUB), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Copies of *Hiker Traffic on and near the Habitat of Robbins Cinquefoil, an Endangered Plant Species*, Station Bulletin 522, June 1982, are now available. Request copies by writing Dr. G. E. Crow, New Hampshire Agricultural Experiment Station, University of New Hampshire, Durham, New Hampshire 03824. (This publication reports on activity observed during summer 1980.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED			THREATENED			SPECIES* TOTAL
	U.S. Only	U.S. & Foreign	Foreign Only	U.S. Only	U.S. & Foreign	Foreign Only	
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Claims	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	55	2	0	8	1	2	68
TOTAL	197	44	444	46	7	24	762

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 5 animals
6 plants

Number of Critical Habitats listed: 52
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 57
Number of Cooperative Agreements signed with States:

38 fish & wildlife
11 plants

September 10, 1982

The reports included in the August 1982 BULLETIN covered activity observed in 1981.)

Endangered, Threatened and Sensitive Vascular Plants of Washington, compiled by the Washington Natural Heritage Program and published June 1982 is now available. Copies may be obtained from the Washington Natural Heritage Program, Department of Natural Resources, 3111 Seminar Bldg. (SE 3109), The Evergreen State College, Olympia, Washington 98505. Please send \$1.00 to cover the postage, and make checks payable to the Department of Natural Resources.

An illustrated poster of all U.S. Endangered and Threatened animals and plants is now available for \$3.95 (quantity discounts available) from Learning Posters, 530 University Avenue, Palo Alto, California 94301. The 22-by-34-inch poster is two-sided and full-color. The side devoted to plants contains pictures of all listed U.S. plants—botanical illustrations by Kirk Caldwell—along with brief descriptions of the plants. The reverse side of the poster includes Carlos Marchlori paintings of 14 listed animals, a chart of all listed animals, and notes about habitat and physical characteristics of many of the species.

September 1982

Vol. VII No. 9

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240



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